

## WHAT IS CLAIMED IS

1. A movable mirror type optic switch comprising:
  - a casing;
  - at least an optic input device for directing an optic signal into the optic switch;
  - at least an optic output device for directing the optic signal out of the optic switch; and
  - at least a reflection system comprising a first reflective surface, a second reflective surface and a third reflective surface;wherein the optic signal that is directed into the optic switch by the optic input device is reflected two times by the first and third reflective surfaces.
2. The movable mirror type optic switch as claimed in Claim 1, wherein the optic input device, the optic output device, the reflection system and a driving device are received and mounted in the casing.
3. The movable mirror type optic switch as claimed in Claim 1, wherein the first reflective surface, the second reflective surface and the third reflective surface are substantially parallel.
4. The movable mirror type optic switch as claimed in Claim 1, wherein the reflection system comprises a movable reflection device and a fixed reflection device.
5. The movable mirror type optic switch as claimed in Claim 4, wherein the fixed reflection device is mounted in the casing.



12. The movable mirror type optic switch as claimed in Claim 1, wherein the optic signal that is directed into the optic switch by the optic input device is reflected three times by the first reflective surface and the third reflective surface and then directed out of the optic switch by the optic output device.
13. An optic switch comprising:
- a casing;
  - at least two optic input devices for directing optic signals into the optic switch;
  - at least two optic output devices for directing the optic signals out of the optic switch;
  - a movable reflection device comprising two movable reflective surfaces and movable between two positions; and
  - a fixed reflection device comprising at least one fixed reflective surface;
- wherein the optic signal that is directed into the optic switch by one of the optic input devices is reflected at least two times by one of the movable reflective surfaces and the fixed reflective surface in order to be redirected into one of the optic output devices.
14. The optic switch as claimed in Claim 13, wherein when the movable reflective surfaces are parallel to the fixed reflective surface.
15. The optic switch as claimed in Claim 13, wherein the optic switch comprises a first optic input device, a first optic output device, a second optic input device and a second optic output device.
16. The optic switch as claimed in Claim 15, wherein the first optic input device is substantially aligned with the first optic output device and wherein the

second optic input device is substantially aligned with the second optic output device.

17. The optic switch as claimed in Claim **15**, wherein a first optic path is formed between the first optic input device and the first optic output device and a second optic path is formed between the second optic input device and the second optic output device, the first and second optic paths intersecting each other, and wherein one of the movable reflective surfaces is located at the intersection of the first and second optic paths for reflecting and redirecting an optic signal from the second optic input device to the first optic output device.
18. The optic switch as claimed in Claim **13**, wherein the optic input devices and optic output devices are mounted in the casing.
19. The optic switch as claimed in Claim **13** further comprising two reinforcing walls formed inside the casing and supporting the optic input devices and optic output devices.
20. The optic switch as claimed in Claim **19**, wherein each reinforcing wall comprises two branches.
21. The optic switch as claimed in Claim **19**, wherein each branch of each reinforcing wall defines a bore for receiving and retaining a corresponding one of the optic input and output devices and a collimating device of the one of the optic input and output devices.
22. The optic switch as claimed in Claim **13** further comprising a stop for limiting the movement of the movable reflective surfaces.

23. An optic switch comprising:

- a casing;
  - a first optic input device attached to the casing;
  - a first optic output device attached to the casing;
  - a second optic input device attached to the casing;
  - a second optic output device attached to the casing;
  - a movable reflection device having first and second reflective surfaces and movable between first and second positions;
  - a fixed reflection device comprising at least a reflective surface which is opposite to and parallel to one of the reflective surfaces of the movable reflection device;
  - a driving device for driving the movable reflection device between the first and second positions; and
  - a cover;
- wherein when the movable reflection device is at the first position, the movable reflection device is located outside a first optic path formed between the first optic input device and the first optic output device and a second optic path formed between the second optic input device and the second optic output device, whereby an optic signal from the first optic input device follows the first optic path toward the first optic output device and an optic signal from the second optic input device follows the second optic path toward the second optic output device; and
- wherein when the movable reflection device is at the second position, the movable reflection device is located on the optic paths, the optic signal from the first optic input device is redirected to the

second optic output device and the optic signal from the second optic input device is redirected to the first optic output device.

24. The optic switch as claimed in Claim 23, wherein the casing defines four opposite holes on four corners thereof, two reinforcing walls being formed inside the casing, each reinforcing wall having two branches, and a holder for holding the fixed reflection device being formed in the casing.
25. The optic switch as claimed in Claim 23, wherein each branch of each reinforcing wall defines a bore.
26. The optic device as claimed in Claim 24, wherein the holder defines a recess for receiving and retaining the reflective surface of the fixed reflection device.
27. The optic switch as claimed in Claim 23, wherein each of the optic input and output devices comprises a capillary, a securing member and a strain relief.
28. The optic switch as claimed in Claim 27, wherein the securing member secures the associated one of the optic input and output devices to the corresponding hole of the casing.
29. The optic switch as claimed in Claim 28, wherein the strain relief is attached to the securing member.
30. The optic switch as claimed in Claim 27, wherein each of the optic input and output devices comprises a fiber extending through the strain relief and the securing member and having an end attached to the capillary.
31. The optic switch as claimed in Claim 23, wherein the optic input devices, the optic output devices, the movable reflection device and the fixed reflection

device are received and fixed inside an interior space defined between the casing and the cover.

32. The optic switch as claimed in Claim 24, wherein the optic input and output devices are secured to the branches of the reinforcing walls.
33. The optic switch as claimed in Claim 23, wherein the driving device comprises an arm connected to the movable reflection device for moving the movable reflection device between the first and second positions.
34. The optic switch as claimed in Claim 33, wherein a retainer is attached to the arms of the driving device, the first and second reflective surfaces being retained in the retainer.
35. The optic switch as claimed in Claim 23, wherein the driving device comprises a relay or a solenoid.
36. The optic switch as claimed in Claim 23, wherein the first and second reflective surfaces of the movable reflection device and the reflective surface of the fixed reflection device are formed by a coating of high reflectivity material.
37. The optic switch as claimed in Claim 23 further comprising a stop for limiting the movement of the movable reflection device.
38. An optic switch comprising:

a casing to which first input device, first output device, second input device and second output device are attached, the first and second input devices being adapted to convey optic signals into the optic

switch and the first and second output devices being adapted to convey optic signals out of the optic switch;

a movable reflection device arranged in the casing and movable between a non-engaged position and an engaged position, the movable reflection device having first and second reflective surfaces; and

an additional third reflective surface which is parallel to and opposes the first reflective surface when the movable reflection device is at the engaged position;

wherein when the movable reflection device is at the non-engaged position, optic signals conveyed into the optic switch by the first and second input devices are allowed to directly pass to the first and second output devices respectively, while when the movable reflection device is at the engaged position, the optic signal conveyed into the optic switch by the second input device is reflected by the second reflective surface to the first output device and the optic signal conveyed into the optic switch by the first input device is reflected at least three times by both the first reflective surface and the third reflective surface and redirected to the second output device.

**39. An optic switch comprising:**

an input device and first and second output devices, the input device being adapted to convey an optic signal into the optic switch, the first and second output devices being adapted to selectively convey the optic signal out of the optic switch;

a primary reflection device having a primary reflective surface movable between a non-engaged position and an engaged position; and



a secondary reflection device having a secondary reflective surface which is parallel to and opposes the primary reflective surface when the primary reflection device is at the engaged position; wherein when the primary reflection device is at the non-engaged position, the optic signal is allowed to directly pass to the first output device and when the primary reflection device is at the engaged position, the optic signal is reflected by the primary and secondary reflective surfaces and redirected to the second output device.

40. An optic device comprising:

first and second optic inputs and first and second optic outputs, the first input and the first output being aligned with each other and forming a first optic path therebetween, the second input and the second output being aligned with each other and forming a second optic path therebetween, the first and second optic paths intersecting at an intersection point, the first and second optic inputs being adapted to respectively convey first and second optic signals to the first and second optic outputs along the first and second optic paths;

a first reflective surface being positionable on the optic paths but not exactly at the intersection point thereof, an auxiliary reflective surface being positioned opposite to the first reflective surface and cooperating with the first reflective surface for reflection and redirection of the first optic signal toward the second output; and

a second reflective surface being positionable at the intersection point of the optic paths for reflection and redirection of the second optic signal toward the first optic output.